

IN THE CLAIMS

Please amend claims 3, 4, 11, 15, 17, 61, 63, and 64 as shown below. Please add new claims 66 and 67. Please cancel claims 54 and 60 without prejudice. The following listing of claims replaces all prior listings.

1-2. (Cancelled).

3. (Currently amended) A targeted vesicle composition according to Claim 17 wherein:

X^1 is $-C(=O)-NH-C(=O)-$;

X^2 is $-C(=O)-$;

R^1 is acyl of having from ~~about~~ 16 to ~~about~~ 20 carbons;

R^3 is alkylene of having from ~~about~~ 1 to ~~about~~ 3 carbons;

R^4 is acyl of having from ~~about~~ 16 to ~~about~~ 20 carbons;

R^6 is a direct bond; and

R^7 is lower alkylene.

4. (Currently amended) A targeted vesicle composition according to Claim 3 wherein:

R^1 is acyl of having from ~~about~~ 17 to ~~about~~ 19 carbons;

R^3 is methylene;

R^4 is acyl of having from ~~about~~ 17 to ~~about~~ 19 carbons; and

R⁷ is ethylene.

5. (Canceled).

6. (Previously presented) A targeted vesicle composition according to Claim 17 wherein said hydrophilic polymer is selected from the group consisting of polyalkyleneoxides, polyvinyl alcohol, polyvinylpyrrolidones, polyacrylamides, polymethacrylamides, polyphosphazenes, poly(hydroxyalkylcarboxylic acids) and polyoxazolidines.

7. (Previously presented) A targeted vesicle composition according to Claim 6 wherein said hydrophilic polymer comprises a polyalkyleneoxide.

8. (Previously presented) A targeted vesicle composition according to Claim 7 wherein said hydrophilic polymer is selected from the group consisting of polyethylene glycol and polypropylene glycol.

9. (Previously presented) A targeted vesicle composition according to Claim 8 wherein said hydrophilic polymer is polyethylene glycol.

10. (Previously presented) A targeted vesicle composition according to Claim 8 wherein said hydrophilic polymer is PEG3400.

11. (Currently amended) A targeted vesicle composition according to Claim 17 wherein said targeting ligand comprises a peptide of the formula:



wherein:

each of m and n are is independently an integer of having value from 1 to about 100;

Xaa and Zaa are independently selected from the group consisting of natural amino acids and synthetic amino acids;

Yaa is selected from Arginine, Homoarginine, and Lysine-N-acetimidate; and with the further proviso that when Xaa and Zaa are sulfur containing amino acids, Xaa and Zaa may be linked together via a disulfide linkage.

12. (Withdrawn) A targeted vesicle composition according to Claim 11, wherein:

Xaa is Glycine;

Yaa is Arginine;

Zaa is Serine;

n is 1, 2 or 3; and

m is 1.

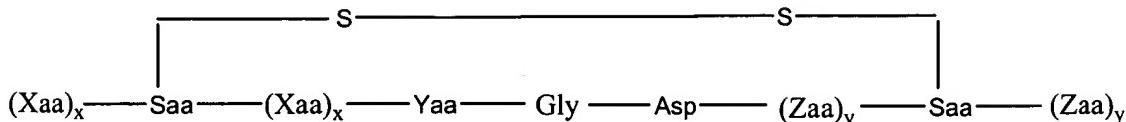
13. (Withdrawn) A targeted vesicle composition according to Claim 12, wherein:

n is 3.

14. (Previously presented) A targeted vesicle composition according to Claim 11, wherein:

Xaa and Zaa comprise an amino acid independently selected from sulfur containing amino acids.

15. (Currently amended) A targeted vesicle composition according to Claim 17 wherein said targeting ligand comprises a peptide of the following formula:



wherein:

each x and y is independently an integer of having value from 0 to about 50;

each Saa is selected from the group consisting of natural and synthetic sulfur containing amino acids, wherein sulfur atoms in said sulfur containing amino acids are linked together by a disulfide bond, as represented by S—S;

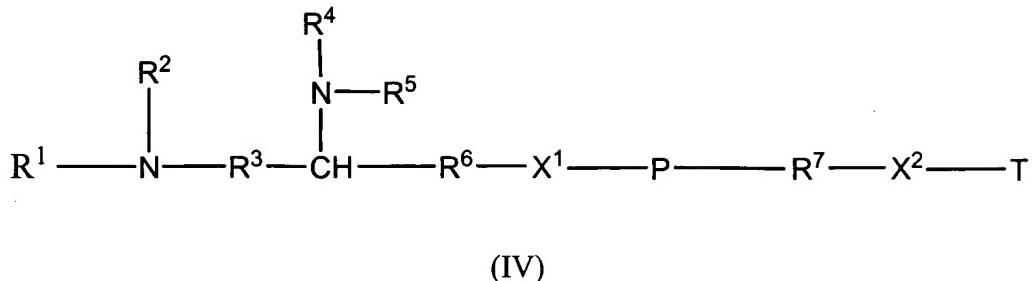
each Xaa and Zaa are independently selected from the group consisting of natural amino acids and synthetic amino acids; and

Yaa is selected from Arginine, Homoarginine, and Lysine-N-acetimidate.

16. (Previously presented) A targeted vesicle composition according to Claim 15 wherein:

each Saa is independently selected from the group consisting of D-Cysteine, L-Cysteine, D-Penicillamine and L-Penicillamine.

17. (Currently amended) A targeted vesicle composition for therapeutic or diagnostic use *in vivo* comprising, in an aqueous carrier, gas filled liposomes comprising a phosphatidylcholine selected from the group consisting of dioleoylphosphatidylcholine, dimyristoylphosphatidylcholine, dipalmitoylphosphatidylcholine and distearoylphosphatidylcholine, wherein said liposomes further comprise a compound having the formula



wherein:

each of X^1 and X^2 are is independently a direct bond or a linking atom or group selected from the group consisting of $-C(=X^3)-$, $-C(=X^3)-N(R^8)-$, and $-C(=X^3)-N(R^8)-C(=X^3)-$;

X^3 is $-O-$ or $-S-$;

R^1 acyl of having from about 16 to about 23 carbons;

R^2 is hydrogen or lower alkyl;

R^3 is alkylene of having from about 1 to about 10 carbons;

R^4 acyl of having from about 16 to about 23 carbons;

R^5 is hydrogen or lower alkyl;

R^6 is a direct bond;

R^7 is a direct bond or alkylene of having from about 1 to about 10 carbons;

R^8 is hydrogen or lower alkyl;

P is a hydrophilic polymer; and

T is a targeting ligand which targets cells or receptors selected from the group consisting of myocardial cells, endothelial cells, epithelial cells, tumor cells and the glycoprotein GPIIbIIIa receptor.

18-21. (Canceled).

22. (Previously presented) A targeted vesicle composition according to Claim 17 wherein said phosphatidylcholine comprises dipalmitoylphosphatidylcholine.

23. (Previously presented) A targeted vesicle composition according to Claim 17 further comprising a phosphatidylethanolamine selected from the group consisting of dipalmitoyl-phosphatidylethanolamine, dioleoylphosphatidylethanolamine, N-succinyldioleoyl-phosphatidylethanolamine and 1-hexadecyl-2-palmitoylglycerophosphoethanolamine.

24. (Original) A targeted vesicle composition according to Claim 23 wherein said phosphatidylethanolamine comprises dipalmitoylphosphatidylethanolamine.

25. (Previously presented) A targeted vesicle composition according to Claim 17 further comprising dipalmitoylphosphatidic acid.

26. (Original) A targeted vesicle composition according to Claim 17, wherein said vesicles comprise a gas selected from the group consisting of perfluorocarbons and sulfur hexafluoride.

27. (Original) A targeted vesicle composition according to Claim 26 wherein said perfluorocarbon gas is selected from the group consisting of perfluoromethane, perfluoroethane, perfluoropropane, perfluorobutane and perfluorocyclobutane.

28. (Original) A targeted vesicle composition according to Claim 27 wherein said perfluorocarbon gas is selected from the group consisting of perfluoropropane and perfluorobutane.

29. (Original) A targeted vesicle composition according to Claim 28 wherein said perfluorocarbon gas comprises perfluorobutane.

30. (Original) A targeted vesicle composition according to Claim 17 wherein said gas is derived, at least in part, from a gaseous precursor.

31. (Original) A targeted vesicle composition according to Claim 30
wherein said gaseous precursor has a boiling point of greater than about 37°C.

32. (Original) A targeted vesicle composition according to Claim 31
wherein said gaseous precursor comprises a perfluorocarbon.

33. (Original) A targeted vesicle composition according to Claim 32
wherein said perfluorocarbon is selected from the group consisting of perfluoropentane
and perfluorohexane.

34. (Original) A targeted vesicle composition according to Claim 17
wherein said vesicles further comprise a bioactive agent that is different from said gas
and said compound.

35. (Original) A targeted vesicle composition according to Claim 34
wherein said bioactive agent comprises a therapeutic agent selected from the group
consisting of genetic material, dihydroergotamine, heparin sulfate, tissue plasminogen
activator, streptokinase, urokinase, hirudin, and mixtures thereof.

36-60. (Canceled).

61. (Currently amended) A targeted vesicle composition according to Claim 4
wherein:

each of R¹ and R⁴ are is acyl of about 18 carbons.

62. (Canceled)

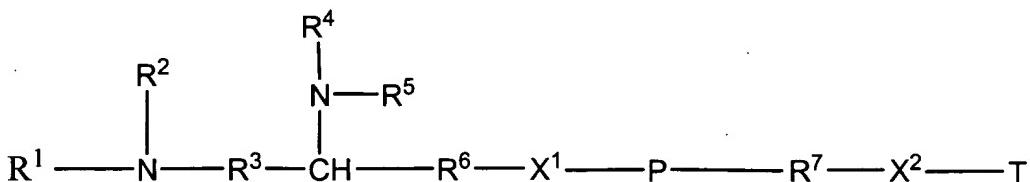
63. (Currently amended) A targeted vesicle composition according to Claim 4
wherein:

R¹ is an acyl of about 18 carbons.

64. (Currently amended) A targeted vesicle composition according to Claim 17, wherein said targeting ligand T is a peptide having from about 3 to about 20 amino acids.

65. (Previously presented) A targeted vesicle composition according to Claim 64, wherein said peptide is cyclized by a linkage selected from the group consisting of sidechain to-sidechain covalent linkages, end-to-sidechain covalent linkages, and end-to-end covalent linkages.

66. (New) A targeted vesicle composition for therapeutic or diagnostic use *in vivo* comprising, in an aqueous carrier, gas filled liposomes comprising a phosphatidylcholine selected from the group consisting of dioleoylphosphatidylcholine, dimyristoylphosphatidylcholine, dipalmitoylphosphatidylcholine and distearoylphosphatidylcholine, wherein said liposomes further comprise a compound having the formula



wherein:

X¹ is -C(=X³)-N(R⁸);

X² is C(=X³);

X³ is O;

each of R¹ and R⁴ is acyl having 18 carbons;

each of R², R⁵ and R⁸ is H;

each of R³ and R⁷ is ethylene;

R⁶ is a direct bond;

P is PEG-3400; and

T comprises a peptide having the sequence CRGDC, wherein the two cysteines are linked together via a disulfide linkage.

67. (New) A targeted vesicle composition according to Claim 66, further comprising urokinase.